

Issue 9 / Fall 2005

Kelso Depot is Open



left: Kelso Depot has been restored to its original color. top: The Depot in 1992. bottom: Inside, the original lunch counter was replicated.

NEARLY TWENTY YEARS AFTER THE LAST CUP OF COFFEE WAS served at the lunch counter in the Kelso Depot, the huge old building is once again open for desert travelers. The Depot, which once operated as a train station, lunch room, and employee dormitory, has been transformed into Mojave National Preserve’s principal information center.

Many of the former dormitory rooms now contain exhibits about the surrounding desert, from tortoises to sand dunes to desert mining and ranching. The old ticket office and two dormitory rooms are historically furnished to convey the feel of Kelso in the first half of the twentieth century. Visitors can watch a brief orientation film in the building’s theater.

Outside, landscaping surrounding the building has been restored and a public restroom, picnic area, and parking have been added. Sitting on the bench under the shade of the arcade, it’s a great place to watch the trains go by.

Kelso Depot was constructed in 1924 at a lonely railroad outpost in the Mojave Desert, during an era when Union Pacific was building elaborate Mission-Revival Style stations to com-

pete with the Harvey Houses operated by UP’s competitor, the Santa Fe Railroad. As the population of Kelso grew to its peak of 2,000 residents during World War II, the Depot served as the hub of community activities. After the war, railroad traffic decreased, railroad automation advanced, and a nearby iron ore mine closed down. Kelso’s boom went bust, and now only a handful of Union Pacific employees live there. The depot building was used less and less, and finally closed down completely in July 1985.

Union Pacific planned to raze the old building, considering it a safety hazard and liability. Local and regional residents wanted to keep the landmark, and created an organization, the Kelso Depot Fund, to save the building. Their efforts were successful, and Union Pacific finally donated the Depot to the Bureau of Land Management in 1992.

When Mojave National Preserve was created in 1994, the building passed to the National Park Service. With the help of Congressman Jerry Lewis, funds were secured for the renovation of the building. Work began in the fall of 2002.

Vist Kelso Depot

- Location:
- 35 miles south of Baker, California.
 - From I-15, exit at Kelbaker Road and drive south 35 miles to Kelso.
 - From I-40, exit at Kelbaker Road and drive north 22 miles to Kelso.
- Hours:
- Wednesday through Sunday, 9:00 a.m. to 4:00 p.m.
 - Closed Monday and Tuesday.
 - The Kelso Depot will be open everyday starting in March, 2006.
- Services:
- Restrooms and water are available at Kelso Depot.
 - Drinks and limited snacks are available at Cima, 19 miles northeast of Kelso on Kelso Cima Road.
 - Gasoline is available along I-15 and I-40.

3 Water for Wildlife

Volunteers from Quail Unlimited and the Big-horn Sheep Society conducted the first annual spring survey to learn more about how rainfall effects water availability for wildlife.

3 Fire and floods

The summer of 2005 brought huge wildfires followed by severe thunderstorms with rainfall accumulations three times above normal. Learn what the park is doing to recover from these events.

4 Hunters find deer, quail

Fall brings deer and bird hunters to Mojave. Some popular hunting areas were effected by the fires, but hunters have had good luck north and south of the burned area.

Contact information, weather...2

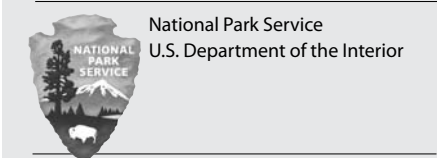
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National Park Service
U.S. Department of the Interior

Mojave National Preserve

Established in 1994, Mojave National Preserve encompasses 1.6 million acres ranging in elevation from 800 feet near Baker to 7,929 feet at Clark Mountain. Here, three of the four major North American deserts meet. Although most of the park lies in the Mojave Desert, the southeast section grades into Sonoran Desert, and elements of the Great Basin Desert are found at higher elevations east of the Granite, Providence and New York Mountains.

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Contact Information

Mailing Address
2701 Barstow Road
Barstow, CA 92311

E-mail
Click on “Contact Us” at [nps.gov/moja](https://www.nps.gov/moja)

Park Headquarters
760 252-6100

Fax Number
760 252-6174

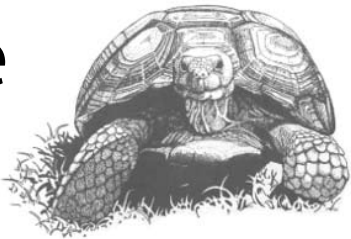
Welcome to Mojave

Cooler temperatures make this a great time of year to visit the desert, and the newly opened Kelso Depot Information Center is a wonderful destination for a day-trip. The renovation and reopening of this marvelous building could not have happened without the efforts of people and organizations across the region, including the Kelso Depot Fund, the coalition of local groups that worked to save the building, and Congressman Jerry Lewis. Former railroad employees, local tribes, and many others contributed to the exhibit. I encourage everyone visiting Mojave to see this desert landmark.

Other recent events have created challenges for park managers and visitors. Heavy spring rains created a lush carpet of grasses and weeds. By early summer, these plants had dried out. On June 22, 2005, a dry-lightning storm sparked seven fires across Mojave. Strong winds carried the fire through the accumulated dried plants. More than 70,000 acres burned. The fire swept through Mid Hills Campground, destroying about half the campsites. The campground is currently closed.

Late summer brought monsoon rains. Unlike the gentle showers of winter, summer rains typically fall in heavy cloudbursts. These rainwaters roll across the land, carving out channels

Protect the Desert Tortoise



Do not pick up or harass a tortoise: observe it from a distance. Tortoises store water in their bladders and can reabsorb the liquid during a drought. When frightened, they frequently empty their bladders. Loss of this important water source can be fatal.

Check under your vehicle before driving away. Tortoises enjoy the shade under your car on a hot day.

Observe posted speed limits, and be especially watchful during and after rainstorms, when tortoises often enter roadways to drink from puddles.

Keep vehicles on established roads only. Vehicles will crush tortoise burrows, killing the tortoises and eggs within.

Do not release captive tortoises. They may carry diseases that can be transmitted to wild tortoises. Instead, turn them in to a licensed tortoise rescue center. For information, call 760-252-6101.

which severely damage roads. Wild Horse Canyon Road is closed, and San Bernardino County road crews have been working hard to keep Black Canyon and Cedar Canyon Roads open. Both roads are in poor condition, and every new rain storm causes additional damage.

Repairs are underway on both the Mid Hills Campground and Wild Horse Canyon Road, and we are working to have both open in time for spring. Until then, I encourage you to continue to camp at Hole-in-the-Wall Campground. Black Canyon Road, which leads from I-40 to Hole-in-the-Wall, is paved and open.

Many adventures await you at Mojave. Rangers are available at Kelso Depot and Hole-in-the-Wall Information Centers to assist in trip planning. If you would like to learn more about park resources or management activities, visit our website or call the headquarters office—contact information is listed below.

Lawrence J. Whalon
Larry Whalon, Acting Superintendent

Temperatures: Average high/low

in degrees Fahrenheit

	Granite Mountain Elevation 4,200 feet	Zzyzx Elevation 930 feet
January	50/36	61/34
February	54/38	69/40
March	59/41	74/46
April	68/48	83/53
May	75/54	93/61
June	85/63	103/70
July	90/67	109/77
August	89/66	107/75
September	83/61	100/68
October	73/52	77/55
November	59/41	73/43
December	50/34	62/34
Average Annual Precipitation	8.5 inches	3.37 inches

Information

Entrance Fee

There is currently no entrance fee for Mojave National Preserve.

Dates and Hours of Operation

Mojave National Preserve never closes. Two information centers offer orientation and maps.

Kelso Depot Information Center

Located 35 miles south of Baker on Kelbaker Road. Open Wednesday through Sunday, 9:00 a.m. to 4:00 p.m. Kelso Depot will be open every day starting in March, 2006. Phone 760 733-4456.

Hole-in-the-Wall Information Center

Located near Hole-in-the-Wall Campground. Winter hours (October through April) Wednesday through Sunday from 9:00 a.m. to 4:00 p.m. Summer hours (May through September) Friday through Sunday, 9:00 a.m. to 4:00 p.m. Phone 760-928-2572.

Gasoline

There are no gas stations in the park, so be sure to fill up before entering. Gas is sold along I-40 at Needles, Fenner, and Ludlow, along I-15 at Baker, Halloran Summit, Cima Road, and Primm, and along U.S. 95 at Searchlight and at the Nevada 163 junction south of Cal Nev Ari.

Water

Always carry plenty of drinking water in your car and especially when hiking. The only drinking water available within the park is at Kelso Depot Information Center, Hole-in-the-Wall and Black Canyon Campgrounds, and at the Providence Mountains State Recreation Area (Mitchell Caverns) Campground.

Lodging

There are no motels within the park. Lodging can be found in Barstow, Nipton, Ludlow, Needles, and Baker, and Twentynine Palms, California, and in Primm and Searchlight, Nevada.

Permits

Recreation Permit \$50.00

A Recreation Permit is required for all organized events, including school groups, hiking clubs, jeep tour groups and scouting groups, or for any group of more than 15 individuals or 7 vehicles. Proof of insurance may be required. For more information, call (760) 252 6107, or click on “Permits” at [nps.gov/moja](https://www.nps.gov/moja).

Special Use Permit \$200.00

A Special Use Permit is required for large, organized events and commercial activities such as filming. Proof of insurance and posting of a bond may also be required. For more information, call (760) 252-6107, or click on “Permits” at [nps.gov/moja](https://www.nps.gov/moja).

Weather

Expect wide fluctuations in day-night temperatures, seasonal strong winds, and bright, clear skies. At low elevations, temperatures above 100 degrees F. typically begin in May and can last into October. Annual precipitaton ranges from 3.5 inches at low elevations to nearly ten inches in the mountains. Most rain falls between November and April; summer thunderstorms may bring sudden heavy rainfall and flash flooding. Strong winds occur in fall, late winter, and early spring.

Telephone & Web Directory

Emergency	911
Emergency: Interagency Communications Center	909-383-5651
San Bernardino County Sheriff - Baker	760-256-1796
- Needles	760-326-9200

Mojave National Preserve	
Barstow Headquarters Office	760-252-6100
Hole-in-the-Wall Fire Center	760-928-2573
Hole-in-the Wall Information Center	760-928-2572
Kelso Depot Information Center	760-733-4456
Kelso Ranger Station	760-733-4011

Nearby parks

Anza Borrego Desert State Park	760-767-4205
Calico Ghost Town	760-254-2122
Death Valley National Park	760-786-2331
Joshua Tree National Park	760-367-5500
Lake Mead National Recreation Area	702-293-8990
Mitchell Caverns/Providence Mountains State Park	760-928-2586

Mojave National Preserve	www.nps.gov/moja
National Park Service	www.nps.gov
Bookstore (Western National Parks Association)	www.wnpa.org
Bureau of Land Management	www.blm.gov
California Desert	www.californiadesert.gov
Leave No Trace	www.lnt.org
Mitchell Caverns/Providence Mtns. State Park	www.calparksmojave.com/providence
Wilderness System information	www.wilderness.net
Federal government jobs	www.usajobs.opm.gov
Desert USA wildflower reports	www.desertusa.com/wildflo/wildupdates

Springs Snapshots Project monitors water for wildlife



Hydrologist Annie Kearns gets her hands wet at Piute Creek.

EIGHTY VOLUNTEERS FROM QUAIL UNLIMITED AND THE Bighorn Sheep Society spent two weekends in October driving the back roads and hiking remote canyons in Mojave National Preserve. Using written descriptions and GPS units, they visited over 100 springs, giving them the “wet hand test” to see if water is available in sufficient quantity for wildlife to use. The project will be repeated annually and correlated with annual precipitation records to learn more about the relationship between rainfall and surface water at springs.

Surface water availability is of interest to those concerned about wildlife in the desert. In wet years one would expect much more surface water than during droughts. Water availability during extended droughts could be a critical factor for sustaining healthy wildlife populations.

Volunteers evaluated each spring using the wet hand test: is there enough water available within reach to wet your hand? If water is a long way down in a well or mine shaft, it might be available to birds and bats, but might not be available for deer, badgers or other four-legged creatures.

Additionally, the volunteers photographed and described each spring. This will allow comparisons in vegetation and flow patterns from year to year.

Survey results will be posted on the park web page, www.nps.gov/moja. Click on the Springs Snapshots link.

Hantavirus Alert



Deer mouse, a carrier of the Hantavirus.

Hantavirus pulmonary syndrome is a respiratory disease caused by a virus shed by deer mice and other rodents. The disease is extremely rare, but very serious: there is no cure, and nearly half of the known patients have died.

The risk of exposure is highest in rural areas, especially in abandoned cabins where rodents are present. Hantavirus has now been reported in 31 states.

The disease spreads to people when rodent urine, droppings, or nesting materials are stirred up. You may be infected by breathing in the virus, touching your mouth or nose after handling contaminated materials, or from a rodent bite.

Symptoms include fatigue, fever and muscle aches, followed by coughing and shortness of breath as the lungs fill with fluid.

To avoid exposure to hantavirus, use extreme caution when exploring abandoned buildings. If you see droppings or nests, stay away. Don’t camp in areas where rodent droppings are present.

Fires and floods leave their mark

By Sandee Dingman, Biologist

THE FIRES
STARTED BY LIGHTNING ON JUNE 22, 2005, AND burning in a very heavy fuel load created by the wet winter of 2005, the Hackberry Complex Fires raced across the landscape, becoming one of the largest fires ever recorded in the Mojave Desert. When the fires were finally contained on June 28, almost 71,000 acres had burned, including pin-yon-juniper woodland and Joshua tree woodland, as well as sagebrush shrubland, and Mojave yucca shrubland.

Even as firefighters were mopping up at the end of the fire, the park initiated the daunting task of Burned-Area Emergency Stabilization and Rehabilitation, known at BAER. After large fires such as these, natural and cultural resource specialists come together to evaluate the burned areas and make recommendations to protect scarred areas from further damage such as erosion. These groups are called BAER teams.

Using satellite imagery and ground verification, the BAER team found that the severity of the burn varied within the fire perimeter. In some areas, nearly everything above ground was consumed, while in other areas, the fire left plants that were damaged but not destroyed. About 20% remained unburned. This “spotty” burning pattern is a common result of natural fire event, characterized by high rates of spread driven by high winds.

Based on the burn severity map, the BAER team conducted field surveys and identified specific projects to mitigate damage to cultural and natural resources, as well as repair facilities such as those at Mid Hills Campground.

THE FLOODS
The burned area rehabilitation process was complicated by the severe monsoon season that settled in, dropping as much as nine inches of rain over four weeks in July and August.

This tremendous rainfall was both a blessing and curse. The denuded land could not absorb the deluge. The rainwater quickly flowed into normally dry washes, resulting in almost daily flash floods that swept torrents of mud and ash downstream. The rainfall and run-off caused gulying throughout the burned area, severely damaging roads and complicating emergency stabilization and rehabilitation efforts.

But when the rains finally subsided and the sun shone once again, the burned areas that suffered only low burn severity responded with a great flush of new plant growth. Even in areas of moderate burn severity, some woody plants re-sprouted from the root crowns. This re-growth was unexpected, as most Mojave Desert plants are not known to sprout or germinate in response to fire. This re-growth of vegetation is in response to a very rare combination of two individually rare desert events: large fire and prolonged rain.

THE FUTURE
Once the flooding subsided, the BAER team went back to work, continuing with more detailed assessments and beginning to implement projects. Some work has already been completed. Hazardous trees in the campgrounds and along roads and trails have been removed. To reduce trampling of springs as the vegetation returns, thirty nine burros were rounded up and entered into the Bureau of Land Management Wild Horse and Burro Adoption Program.



Sandee Dingman



Sandee Dingman

top: Seven separate fires were part of the Hackberry Complex. Many burned together, creating two burned areas. bottom: Flash floods like this one in Black Canyon periodically wash out roadways.

- Other projects are ongoing and will continue into 2006. These include:
- A California Conservation Corps crew has cleaned up restrooms and painted picnic tables at Mid Hills and Hole-in-the-Wall Campgrounds.
 - Burned public directional and safety signs are being replaced.
 - Wild Horse Canyon Road washed out during the floods and is now impassable. Repairs began on November 1, 2005.
 - More than 300 cultural sites are being assessed. A few archaeological sites are in danger of eroding, and will be stabilized.
 - Over 100 mine shafts were burned over and some were made unstable when their support timbers burned. They are now being evaluated, signed, and fenced.
 - Fire and flood impacts to rare plant populations are being assessed.
 - Non-native plants, which often out-compete natives in disturbed areas, have been removed and weed monitoring and control will continue through the spring. The two major concerns are for the spread of Saharan mustard along roadways and saltcedar around springs.
 - Exclusion fences are being constructed to fence cattle out of the burned area for two to three years to allow recovery of the vegetation. Eventually, the burned allotment fence will also be rebuilt.

Opportunities to study landscape-scale fire in deserts are few and far between, as evidenced by the lack of fire effects and fire ecology data and published studies. Scientists are planning and initiating studies to increase scientific knowledge about desert fire ecology, providing a unique opportunity to learn more about the dynamic environment of the Mojave Desert.



Scientists measure a Mohave tui chub before it is packed for transport to the research labratory in Tuscon.

Mohave Tui Chubs ride to Tuscon

By Debra Hughson, Science Advisor

THE MOHAVE TUI CHUB, THE ONLY FISH native to the Mojave River, is an endan-gered species of the minnow family that now lives in only three places in the world. One is Lake Tuendae, an artificial pond at Zzyzx that is about an acre in size.

In 2001, scientists found that the chubs living in Lake Tuendae were infected with the Asian tapeworm, a parasite that first migrated from China to Russia and is believed to have entered the U.S. in shipments of grass carp, and spread to California by live baitfish. It kills by blocking the intestines and creating lesions on the intestinal wall, causing up to 90% mortality in other minnow spe-cies. At the same time, mosquitofish were also discovered in the lake. Mosquitofish are commonly introduced for control of mosquitoes, but it is not known when or how they got into Lake Tuendae.

Scientists are concerned about how both the tapeworm and the mosquito fish may effect the survival of the Mo-have tui chub. To investigate these ques-tions, Mojave National Preserve has engaged the Arizona Cooperative Fish and Wildlife Research Unit, under the direction of Dr. Scott Bonar, to study

the effects of the Asian tapeworm on the Mohave tui chub. In August, 2005, scientists trapped 25 chubs from Lake Tuendae and drove them in environ-mentally-controlled containers safely back to the Research Unit in Tucson.

At the Research Unit, the fish were treated to eliminate tapeworms, and are now being propagated using procedures developed for other chub species. The resulting chub fry will then be divided into four groups. One group will be ex-posed to the tapeworm alone; a second group, to the mosquito fish alone. The third group will be exposed to both to see how the chub responds to both im-pacts together. The fourth group will be kept free of parasites in tanks without competition from mosquitofish. Tanks will be set up to simulate the natural environment as closely as possible, including similar temperatures, cover, sediment, zooplankton and the pres-ence of algae, bacteria and ciliates.

Experiments at Lake Tuendae will also be conducted and the results will be available in 2009. The knowledge gained through this process will guide managers as they decide how best to manage Lake Tuendae to ensure the survival of the Mohave tui chub.

Youth crew improves access to Piute Springs



The remains of Fort Piute's rock walls are just up the hill from Piute Springs.

PIUTE SPRINGS IS NOW A BIT EASIER TO visit and enjoy. A California Conserva-tion Corps crew spent ten days working at Fort Piute in September, 2005, im-proving access to the fort and stream-side. The crew cleaned up and im-proved trails, adding steps and drainage features. They also removed large rocks from the extremely bumpy access road.

Fort Piute was briefly used as a military outpost in 1867-68, during the days when the Mojave Road was used as a route for the U.S. mail. The ruins have largely disappeared, but the National Park Service has completed stabliza-tion work on the remaining rock walls in recent years.

In August, 2004, a wildfire swept through the dense thicket of trees, shrubs and cattails growing along Piute Creek. Park managers were concerned about how trampling might effect the reestablishment of streamside plants, so the area was fenced off for one year. The fence was removed in August, 2005, so you can again walk along the stream.

Planning is now underway to place out-door exhibits describing some of the peo-ple and events of the Piute Springs area. A small picnic area will also be developed.

Piute Springs is located on the east side of Mojave National Preserve. Directions to Piute Springs are on page 5 of this guide.

Hunters find deer, quail



Quail hunters show off their birds at Hole-in-the-Wall Campground.

By Chris Mills, Park Ranger

"IS HUNTING ALLOWED?" ASKED A VISITOR at Hole-in-the Wall Information Center. I explained that while Mojave is part of the National Park Service, it is a nation-al preserve rather than a national park. National preserves are areas that are worthy of designation as parks, but al-low hunting. "What do they hunt here?" continued the visitor. I replied that mule deer and quail are the favorites, although the wily chukar, an exotic partridge, en-tices some hunters as well. An average of 40 deer are taken from Mojave National Preserve each year.

Several deer hunters telephoned in September, after the large Hackberry Fire this summer burned the Mid Hills area, a favorite of many hunters. I rec-ommended other higher elevation and more wooded locations to try this year. Hunting at Mojave is managed by the California Department of Fish and Game, and they offered to buy back any unwanted deer tags due to the fire damage. Some hunters took advantage of their offer, but while opening day of deer rifle season was quieter than usual, plenty of hunters still turned out.

Park Ranger Joe Spillane patrols the park most weekends. "There was more hunting around the New York Moun-tains this year," said Spillane. "The hunters are more spread out, and trying different areas like west of Pinto Val-ley and around Keystone Springs." The following weekend the season opened for quail and chukar, and the number of hunters increased dramatically. "There are profuse amounts of quail again this year, so quail hunters should do well," said Spillane.

By the second weekend of deer season, we had an unofficial count of about 12 deer taken. Not surprisingly, successful deer hunters are often reluctant to say exactly where they got their animal. As I stood in the Visitor Center parking lot validating a hunter's deer tag, it was easy to get caught up in his enthusiasm as he described his hunt, although the location was a little vague. He told me that he had been lucky last year as well. I wished him a safe journey home, and returned to the Visitor Center to com-miserate with other deer hunters who weren't so lucky. But there's always next year.....

Heavy rains have damaged dirt roads

DEEP SANDY SECTIONS OF DIRT ROADS trap many back-road explorers every year. Rainfall over the last year has been three times the average, causing severe damage to roads.

If you are planning on exploring Mo-jave's dirt roads, it's a good idea to check on road conditions. Telephone numbers are listed on page 2 of this guide.

Black Canyon and Cedar Canyon Roads, normally open for any kind of traffic, are in rough shape. San Ber-nardino County, which maintains these roads, closes them after rains until they can be repaired. Even with grading work, expect these roads to be in poor condition this winter.

Winter rains created muddy areas that are also treacherous. Last spring, several vehicles were stuck in the mud on Soda Lake, and could not be towed out until conditions improved. The cost of re-moving a vehicle stuck on a remote dirt road is quite high; most tow companies will not take the job.

Park rangers recommend high-clear-ance 4-wheel drive vehicles on dirt roads that are not maintained.

Driving tips for sand and mud

- Use low gearing and just enough throttle to maintain forward movement.
- Engage 4-wheel drive.
- Turn the steering wheel rapidly from side-to-side if you sense a loss of traction. This can help generate additional traction.
- Don't gun the engine. This will spin the tires and dig you down, not forward, and could bury you to the frame. Smooth, easy power is better than too much power.
- If you do get stuck, it's best to stay with your vehicle, since it's much easier to find than someone traveling on foot.
- Always carry plenty of water.

Exploring Mojave

Kelbaker Road

“At Kelso, we took on supplies and found that Baker lay just across another small range. There was no road or trail, but once we gained the summit, Baker could be seen in the white alkali sink below. Thirty-six miles away, just twelve merciless hours of walking; and on Armistice Day 1936 we stumbled wearily into Baker.”
–Edna Calkins Price, Burro Bill and Me

Today, Kelso and Baker are connected by Kelbaker Road, a paved highway that extends south of Kelso to I-40. The 57 mile drive from I-15 at Baker to I-40 east of Ludlow winds past cinder cones, lava flows, the Kelso Depot and the Kelso Dunes.

Cinder Cones & Lava Flows – 14 miles south of Baker. No signs or services.

Kelbaker Road cuts through an area of thick lava flows intermixed with more than 30 volcanic cinder cones covering an area of 25,600 acres, creating an eerie red-black moonscape. In 1973, the area was designated as Cinder Cones National Natural Landmark because of its scenic beauty and exceptional geological value.

These cones are thought to range in age from 10,000 to 7 million years. Some of the lava flows were formed as recently as 1,000 years ago.

Aiken Mine Road (19.5 miles south of Baker) offers an interesting side trip through the heart of the area. High clearance and/or 4x4 vehicles recommended.

Kelso Depot – 34 miles south of Baker. Information Center, exhibits, restrooms, water, picnic tables. Hours listed on page 2.

Built in 1924, the Kelso Depot served as train station, restaurant, and employee housing on the Los Angeles and Salt Lake route of the Union Pacific Railroad. The building is now the park’s principal information center and museum. Extensive exhibits describe desert ecosystems, places, people, and history. Historically furnished rooms provide a glimpse into Kelso’s past. Rangers show a 12 minute orientation film in the theater.

Kelso Dunes – 43 miles south of Baker, then 3 miles west on a graded dirt road. The dunes are closed to vehicles, but are open to foot traffic. Trailhead, vault toilets, no water.

Kelso Dunes were created by northwesterly winds carrying sand grains from the dried Soda Lake and Mojave River Sink located to the northwest. In the path of these winds are the Providence and Granite Mountains, barriers that trapped the blowing sand. The entire dune system was created over a 25,000 year time period. The dunes are about 700 feet high and cover a 45 square mile area. Most of the sand grains are made of light-colored quartz and feldspar, which give the dunes an overall golden appearance.

The Kelso Dunes are “booming dunes.” They produce a low rumbling sound when sand grains slide down the steep slopes. Sand must have the right moisture content to “boom.” Try running downhill to initiate the booming sound.

Granite Mountains – 50 miles south of Baker on Kelbaker Road.

An imposing jumble of granite marks the south entrance to the park on Kelbaker Road. Portions of the Granite Mountains lie within the University of California’s Desert Research Center; respect the fencing that marks the boundary.



Cactus, yucca, and Joshua trees west of Cima Dome.

Zzyzx

Zzyzx/Soda Springs – 6 miles west of Baker on I-15, then 4 miles south on Zzyzx Road. Vault toilets, non-potable water, picnicing, nature walk.

Historically known as Soda Springs and later renamed Zzyzx (pronounced Zye-Zix), this oasis is home to the California State University Desert Studies Center. Buildings and pond were developed in the 1940s by Curtis Springer, who operated a health resort at the site. Zzyzx is open to the public–stroll around Lake Tuendae and along the shore of Soda Dry Lake. If classes are in session, be courteous and do not disturb participants.

Cima Road

Cima Dome & Joshua Tree Forest– Along Cima Road between I-15 and Cima. Teutonia Peak Trailhead, exhibits, 12 miles south of I-15 on Cima Road.

A near-perfectly symmetrical dome rises 1,500 feet above the surrounding desert. Although the top of the dome is located west of Cima Road near the Teutonia Peak Trailhead, this unusual geologic feature is best seen from a distance: try the view looking northwest from 2.5 miles east of Kelso Cima Road on Cedar Canyon Road. One of the world’s largest and most dense Joshua tree forests grows here.

Cedar Canyon & Black Canyon Roads

Rock Springs – 5.2 miles east of Black Canyon Road on Cedar Canyon Road, then 0.25 mile south on an unmarked dirt road. 4x4 vehicle recommended, or walk in from Cedar Canyon Road. Roadside exhibits.

The spring, nestled in a rocky alcove, was a well-known waterhole for early travelers. Camp Rock Springs, a military “redoubt” established in 1866 to protect travelers and the mail, was one of the most isolated and comfortless army posts in the West.

Mid Hills – 2 miles west of Black Canyon Road on the north end of Wild Horse Canyon Road. Campground, water, vault toilets, trailhead. Not recommended for RVs.

A fire swept through here in June, 2005, burning through pinyon pine, juniper, and sagebrush. The area is closed to repair roads, campsites and signs, but will reopen by January, 2006.

Hole-in-the-Wall – Just north of the junction of Black Canyon and the south end of Wild Horse Canyon Roads. Information Center (hours listed on page 2), campground, trailhead, restrooms, water, telephone.

Rhyolite cliffs riddled with holes and hollows are the backdrop for Hole-in-the-Wall.

Clark Mountain

No signs or services. Check detailed maps or ask a ranger for access information. 4x4 vehicles recommended.

The only section of the park north of I-15 is also its highest point at 7,929 feet. A relict white fir grove near the top is one of only three in the Mojave Desert. Rock climbing on existing routes is permitted.

Nipton, Ivanpah, & Lanfair Roads

Hotel Nipton – 11 miles east of I-15 on Nipton Road. Hotel and store are privately operated; call 760 856-2335 for information.

Built in 1910, this charming hotel on the park boundary reflects the railroad, ranching, and mining history of the small community at Nipton.

Caruthers Canyon – 5.5 miles west of Ivanpah Road on New York Mountains Road, then 2.7 miles north on an unsigned road. Primitive camp area, hiking; no signs or services. 4x4 vehicle recommended.

Caruthers Canyon is located in the rugged New York Mountains which rise above 7,500 feet. Chaparral plants grow here in a botanical “island” left over from wetter times.

Lanfair Valley – Located south of the New York Mountains along Ivanpah Road. No signs or services. Respect the rights of private property owners.

This high valley shelters an impressive Joshua tree forest and was an early ranching and homesteading center. From 1893 until 1923, the Nevada Southern Railway ran up the valley from Goffs, providing services to homesteaders and ranchers in the valley and the miners in the mountains beyond. Little evidence remains of homesteads that once dotted the valley.

Piute Springs

6.1 miles west of U.S. 95 on the unmarked Mojave Road, then 3.1 miles west on an extremely rough unmarked dirt road. Trail; no signs or services. 4x4 vehicle recommended.



Trees, shrubs, and cattails are recovering in Piute Creek after a fire in August, 2004.

A narrow ribbon of willows, cottonwoods, and rushes thrive along a half-mile section of Piute Creek. Fort Piute, one of a string of military outposts built along the Mojave Road, was located at this water source.

The recently stabilized ruins of Fort Piute are visible. Please respect these ruins. Don’t climb on the foundations; don’t remove anything from the area.

Mojave Road 4 x 4 Route



Mojave Road travelers near the rock pile on Soda Dry Lake.

“The country, as a whole, seemed a vast volcanic desert–of mountains, canyons, and mesas–and what it was ever made for, except to excite wonder and astonishment, is a mystery to the passing traveler....Water was found only at distances of ten and twenty miles apart...”
–J.F. Rusling describes his 1866 trip on the Mojave Road in Across America.

Used by Indians to transport goods from the southwest to trade with the Chumash and other coastal tribes, this route later served the cause of westward expansion. Military forts were established along the route to protect key water sources and provide assistance for travelers. Today it is a popular four-wheel drive road.

The Mojave Road is an east-west route that enters the park near Piute Spring on the east side and on Soda Dry Lake near Zzyzx on the west. Some sections are rough and sandy; 4 x 4 recommended. Roads can become slick, muddy, and impassable after rains. Be sure to inquire about road conditions, especially if you plan to cross Soda Dry Lake.

The Mojave Road Guide by Dennis Casebier provides in-depth history and mile-by-mile descriptions of the road. It is available for purchase at park information centers.

Camping

Campgrounds

Two family campgrounds have vault toilets, trashcans, and potable water. There are no hookups, but there is a dump station at Hole-in-the-Wall. Each campsite has a picnic table and a fire ring. No reservations; \$12 per site per night, \$6 for Golden Age/Golden Access Passport holders. The group campground does accept reservations—see below.

HOLE-IN-THE-WALL CAMPGROUND

Located at 4,400 feet in elevation and surrounded by sculptured volcanic rock walls; there are 35 campsites for RVs and tents, and two walk-in tent sites.

MID HILLS CAMPGROUND - CLOSED - WILL REOPEN IN JANUARY, 2006

A fire swept through here in June, 2005, burning over much of the area. Unburned campsites are surrounded by pinyon pine and juniper trees. At 5,600 feet in elevation, Mid Hills is much cooler than the desert floor below. The access road is not paved and is not recommended for motorhomes or trailers; 26 campsites.

BLACK CANYON EQUESTRIAN & GROUP CAMPGROUND

Located across the road from Hole-in-the-Wall Information Center, this campground has vault toilets, water, a picnic shelter with tables, fire ring, and corrals. Fee is \$25 per night; call 760-928-2572 for reservations.



above: Mojave yucca and cholla cactus grow near campsites at Hole-in-the-Wall. right: Wildfire in spring, 2005, burned pinyon and juniper at Mid Hills Campground.

Nearby Camping Areas

Providence Mountains State Recreation Area (Mitchell Caverns), 16 miles north of I-40 on Essex Road, has six campsites with tables and fire rings available on a first-come basis for \$12 per night.

Afton Canyon, 25 miles west of Baker on I-15, has a BLM campground with tables and fire rings for \$6 per night.

Commerical camping is available at Nip-ton and Needles, California.



Roadside Camping

Roadside car camping is permitted in areas that have been traditionally used for this purpose. Camping tramples vegetation; by picking sites that have already been used for camping, you help protect the desert from further damage. Not all sites can accomodate multiple vehicles; please don’t enlarge sites. Do not camp along paved roads or in day-use areas, and stay at least 200 yards from all water sources.

Selected Roadside Camping Areas:

Rainy Day Mine Site
15.2 miles south of Baker on Kelbaker Road, then 0.3 miles northeast on the road to the Rainy Day Mine. 4x4 vehicle recommended; no RVs.

Black Canyon Road
5.2 miles south of Hole-in-the-Wall Information Center on the east side of Black Canyon Road, near rock piles.

Granite Pass
6.1 miles north of I-40 on Kelbaker Road, just north of Granite Pass, then west on one of several access roads. Campsites are located just north of the granite spires. High clearance vehicle recommended; no RVs.

Caruthers Canyon
5.5 miles west of Ivanpah Road on New York Mountains Road, then 1.5 to 2.7 miles north to campsites. 4x4 vehicle recommended; no RVs.

Sunrise Rock
12 miles south of I-15 on the east side of Cima Road. Trailhead for Teutonia Peak Trail is nearby on the opposite side of Cima Road.

Kelso Dunes Mine
4 miles west of Kelbaker Road on Kelso Dunes Road, an unpaved road. Many campsites are available 1 mile beyond the marked trailhead near a clump of tamarisk trees. Roadside camping is not allowed at the Kelso Dunes parking area or anywhere else along the Kelso Dunes Road, except at this site.

Guidelines for Explorers

Private Property

Private property inholdings are found throughout the Preserve. Please respect the rights of our neighbors. It is your responsibility to receive permission before hunting, hiking, or entering private property.

Cattle and Fences

Most grazing within Mojave National Preserve occurs on public land. This land is open to you to explore, but please don’t disturb cattle, fences, or water tanks. Leave gates as you find them.

Pets

Pets must be confined to a leash no longer than six feet at all times, with the exception of dogs used while hunting. Dogs used for hunting must be under the owner’s control at all times. Do not leave pets unattended inside or outside of vehicles.

Bicycles

Bicycles are allowed on dirt and paved roads, but are not allowed on hiking trails unless they are former roads. Bicycles are not allowed in Wilderness areas or for cross-country travel.

Collecting and Vandalism

Disturbing, defacing, or collecting plants, animals, rocks, historic or archaeological objects is prohibited. These are part of our national heritage, and should be left as you found them for all to enjoy. Metal detectors are not allowed.

Firewood & Campfires

Wood is scarce in the desert. Cutting or collecting any wood, including downed wood, is prohibited. All firewood, including kindling, must be brought in.

Campfires are allowed in fire rings in campgrounds and other established sites. To minimize your impact even more, use a firepan and pack out the ashes. Please do not leave fires smoldering or unattended.

Firearms

Target-shooting or “plinking” is not allowed within Mojave National Preserve.

Possession or use of firearms is prohibited, except during lawful hunting activities. A valid hunting license and appropriate tags are required. Do not shoot within 150 yards of any development (campgrounds, visitor centers, residences, etc.). Please remove all spent shells.

Firearms must be unloaded and cased within campgrounds and vehicles at all times.

Possession and use of fireworks or model rockets is not allowed.

Safety

Let someone know your trip route, destination, and return date, vehicle make and license plate. Cell phone coverage is sporatic.

Take a minimum of one gallon of water per person per day (two gallons if you are hiking), and drink it freely. Carry extra drinking water for emergencies.

Carry plenty of food, sunscreen, proper clothing, and a first aid kit with you at all times. Hikers should wear a hat and sturdy shoes and carry a good map, sunscreen, plenty of water, extra clothing and a flashlight for after sunset.

Familiarize yourself with the area and learn about desert travel and survival before you begin your exploration. Carry a good map and know how to use it.

Wilderness

Nearly 50% of Preserve lands have been designated by Congress as Wilderness. These special places offer the chance to escape the sights and sounds of civilization. Exploration on foot or horseback is encouraged; cars and other mechanized vehicles are not allowed. Please watch for and respect Wilderness boundary signs.

Backpacking & Horsepacking

Backpackers traveling only on foot or by horse can camp within the Preserve by going at least 0.5 mile from any developed area or road and 200 yards from water sources. Make your camp out of sight of roads. There is no registration system, so be sure to let someone know your trip plans. Backcountry camping is limited to a 14 day stay. There are few trails; take a good map and become familiar with the area you are hiking through. In the summer, do not set up in a dry wash as flash floods can develop quickly in the desert.

Dirt Road Driving

Rules of the Road
All vehicles operating within Mojave National Preserve must be street-legal in accordance with California DMV requirements. This includes current registration and tags, lights and turn signals, and valid insurance. California “Green Sticker” and “Red Sticker” programs are not recognized within the park.

Road Conditions
Road conditions vary widely. Dirt roads may be rough. Sandy or muddy roads may be impassable, trapping the unprepared motorist many miles from help. Watch for cattle, burros, and wildlife on roadways.

Not all roads are shown on all maps; traces and illegal shortcuts add to the confusion. Carry a good map and ask a park ranger for current road conditions.

Traveling off pavement within the park is allowed only on existing, open dirt roads. Do not travel cross-



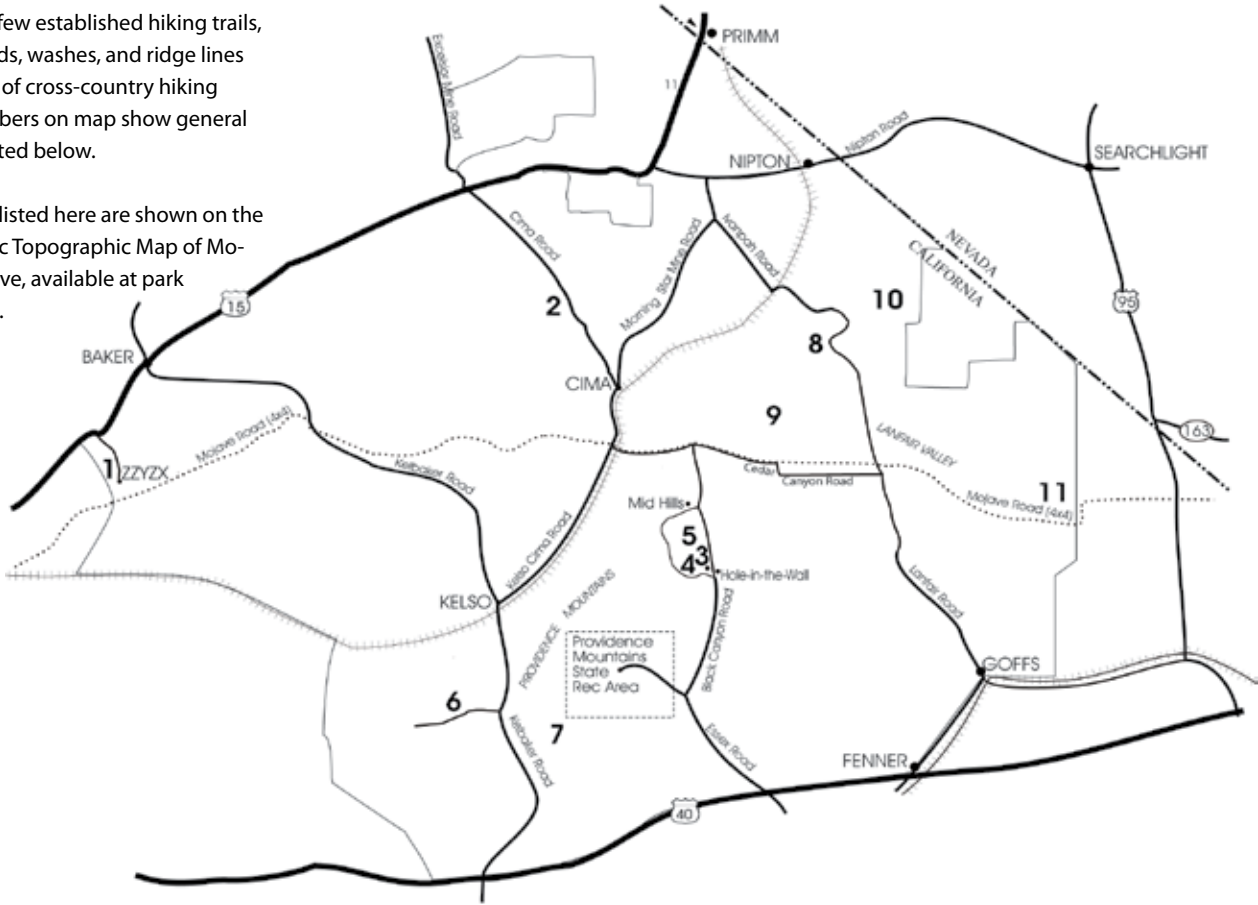
country or create new routes. This rule is strictly enforced; citations are issued for violators. Watch for and respect Wilderness Boundary signs; motorized vehicles are not allowed in Wilderness Areas. Driving in washes is not permitted.

Your Vehicle
Ensure that your vehicle is in good condition. Check your tires, oil, and gas gauge before you leave. Be prepared for an emergency. Carry a tire jack, tools, towrope, and extra water and fluids for your vehicle.

Hiking

Although there are few established hiking trails, abandoned dirt roads, washes, and ridge lines offer an abundance of cross-country hiking opportunities. Numbers on map show general locations of trails listed below.

All trails and routes listed here are shown on the National Geographic Topographic Map of Mojave National Preserve, available at park information centers.



Developed Trails

1) Lake Tuendae Nature Trail – 0.25 miles round trip. Trailhead at Zzyzx parking area, 4 miles south of I-15 on Zzyzx Road.

Stroll around Lake Tuendae and learn about its importance to the natural and cultural history of the area.

2) Teutonia Peak Trail – 4 miles round trip. Trailhead 12 miles south of I-15 or 6 miles north of Cima on Cima Road.

Explore the dense Joshua tree forest on the way to a rocky outcropping on Cima Dome.

3) Hole-in-the-Wall Nature Trail – 0.5 mile round trip. Trailheads at Hole-in-the-Wall Information Center and Campground.

Learn to identify desert plants as you walk between the campground and information center.

4) Rings Trail – 0.5 mile round trip. Trailhead at picnic area 0.2 mile northwest of Hole-in-the-Wall Information Center. Trail connects to the Mid-Hills to Hole-in-the-Wall Trail.



Descend through Banshee Canyon with the help of metal rings mounted in the rock, and discover the holes of Hole-in-the-Wall.

5) Mid Hills to Hole-in-the-Wall Trail – 8 miles one way. Trailheads at entrance to Mid Hills Campground and about 1 mile west of Black Canyon Road on the south end of Wild Horse Canyon Road. Mid Hills trailhead closed due to recent fire. Trailheads closed due to a recent fire. They will reopen in January, 2006. Until then, access this trail via the Rings Trail.

Hike through a maze of washes decorated with barrel and cholla cacti, then through the Hackberry Fire burned area. Watch carefully for trail route markers. Total elevation gain is 1,200 feet.

Recommended Routes

Warning: these routes are not established trails. Check a detailed map or consult a park ranger for route information. Maps and guidebooks are available at park information centers.

6) Kelso Dunes – Hike is 3 miles roundtrip. Trailhead is 3 miles west of Kelbaker Road on the well graded but unpaved Kelso Dunes Road. Road is rough with “washboard” in places.

Early morning and late afternoon climbers will appreciate both the rose-colored glow of the dunes and cooler temperatures. The hike may take several hours as you slog through the sand, then slide down the slopes.

7) Quail Basin – Hike is 6.5 miles one way. No marked trailhead. Begin hike at one of two places. The northern end of the trail begins 12.5 miles north of I-40 on Kelbaker Road, then 1 mile east of Kelbaker Road on an unmarked dirt road. Park at junction with closed dirt road heading south. To begin at the south end, drive 5.1 miles north of I-40 on Kelbaker Road, then 4.5 miles east on Hidden Hills Road. Park at the beginning of an closed dirt road heading north. 4X4 vehicle recommended.

Route is a series of abandoned dirt roads that lead past jumble rocks, into a sandy-bottomed canyon of barrel cactus and Mojave yucca.

8) Keystone Canyon – Hike is 3 miles one way. No marked trailhead. Route begins 18 miles south of Nipton Road on Ivanpah Road, then travel 2.5 miles east on an unmarked dirt road, bearing right at two forks. Bear left at 2.5 miles, then travel a short distance downhill to a parking area. 4X4 vehicle recommended.

Hike the deteriorating closed road into Keystone Canyon up to near the top of the New York Mountains. Continue cross-country to the top of the ridge for views to the west.

9) Caruthers Canyon – Hike is 3 miles one way. No marked trailhead. Route begins at primitive campsites in Caruthers Canyon, 5.5 miles west of Ivanpah Road on New York Mountains Road, then 2.7 miles north on unsigned road. 4x4 vehicle recommended.

Hike through a rocky basin to an abandoned gold mining area. Do not enter mine shafts or climb on abandoned structures; they are unstable and extremely dangerous.

10) Castle Peaks Corridor - Hike is 4 miles one way. No marked trailhead. Isolated area; requires 15 miles of rough dirt road driving. Hike begins 4.9 miles east of Ivanpah Road on signed Hart Mine Road; left at fork, then 0.9 miles, left at fork, then 3.4 miles, crossing an earthen berm; left at fork, then 1 mile more to where road ends. 4x4 vehicle recommended.

Walk up the closed road to the ridgetop and beyond into a small canyon. Excellent views of Castle Peak spires.

11) Piute Creek – Hike is 6.5 miles round trip. No marked trailhead. Hike begins on a hill 9.5 miles east of the junction of Lanfair Valley and Cedar Canyon Roads on a dirt utility road, then 0.5 miles north. 4x4 vehicle recommended.

Hike 6.5 miles roundtrip through colorful Piute Gorge and explore the ruins of Fort Piute, one of several military redoubts built and manned in the 1860s to protect mail and travelers on the Mojave Road. Return to your vehicle by following a now-unused trace of the Mojave Road. A perennial stream near Fort Piute, rare in the Mojave, supports riparian plants and animals. You will see stream-side plants recovering after a fire swept through in August, 2004.

Providence Mountains State Recreation Area Trails

All trails begin near Mitchell Caverns headquarters, 6 miles west of Black Canyon Road on Essex Road.

Nina Mora Trail – 0.5 miles round trip. Path begins at east end of campground, travels over a ridge dotted with cactus and yucca, and past the grave of Nina Mora, a Mexican silver miner’s daughter who died near here, and on to a viewpoint.

Crystal Spring Trail – 2 miles round trip. Steep trail passes through Crystal Canyon, a limestone and rhyolite rock gorge with castle-like formations. Cross slopes of pinyon and juniper mixed with barrel and prickly pear cactus, with excellent views of Providence Mountain Peaks nearby and the Clipper Valley below.

Mary Beal Nature Study Trail – 0.5 mile round trip. Booklet keyed to trail offers an introduction to high desert flora. The trail honors Mary Beale, an early desert botanist.



State park rangers conduct regularly scheduled tours of Mitchell Caverns.

Mitchell Caverns: A State Park within Mojave National Preserve

STALACTITES, STALAGMITES, HELICTITES, shields, and draperies are but a few of the formations inside Mitchell Caverns at Providence Mountains State Recreation Area. Located south of Hole-in-the-Wall in Mojave National Preserve, this 5,900 acre California State Park offers cave tours, camping, and hiking in the spectacular Providence Mountains.

TOURS
Guided tours of Mitchell Caverns require a 1½ mile walk and last about 1½ hours. Tour size is limited to 25 people. From Labor Day Weekend through Memorial Day, weekday tours start at 1:30 p.m.; weekend and holiday tours start at 10:00 a.m., 1:30 p.m., and 3:00 p.m. Summer tours, from Memorial Day through Labor Day, are offered at 1:30 p.m. daily. The cost is \$4 for adults, and \$2 for children ages 16 to six. No charge for children five and under. Reservations can be made by calling at least three weeks in advance. Groups of ten or more are by reservation only. Reservations are optional for groups smaller than ten. The temperature inside the cave is a comfortable 65°F, so dress for the outside weather. Wear sturdy shoes.

CAMPING AND HIKING
At 4,300 feet in elevation, the campground offers superb views of the surrounding desert. Six campsites with tables and fire rings are available on a first come, first served basis for \$12 per night. Water and flush toilets are provided. The Mary Beale Nature Trail, near the Visitor Center, features desert plants and animals along a moderate walk; a trail guide is available. There are two other short trails. Cross-country hikers can reach the peaks of the Providence Mountains. Groups planning to hike cross-country require a free permit from the Visitor Center.

For reservations and additional information, call 760-928-2586.

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